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A NEW SPECIES OF *CYRTODACTYLUS* (GECKONIDAE) FROM NEW GUINEA WITH A KEY TO SPECIES FROM THE ISLAND

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ABSTRACT. A new species of *Cyrtodactylus* from New Guinea is described. The type locality is Derongo at an altitude of 1300 feet on the Alice River tributary system to the upper Fly River, in western Papua, New Guinea. A key to the species of *Cyrtodactylus* which have been recorded from New Guinea is also provided (see de Rooij, 1915, for descriptions of most of the species).

INTRODUCTION

Of the nine species of *Cyrtodactylus* previously recorded from New Guinea, known ranges of at least two (*C. sermowaiensis* and *vankampeni*) are restricted to one or two localities. The species described in the present paper may also exhibit a limited range, for although the junior author has collected extensively in papuan New Guinea for several years, no specimens have been collected thus far outside of the type locality in the headwaters of the Fly River.

Inger (1958) calls attention to the usefulness of the pattern of the enlarged scales in the preanal region and on the under surface of the thighs as characteristics for distinguishing species of *Cyrtodactylus*, and uses it in the key to the species from the Philippines and Borneo. We have found these characters sim-

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ilarly useful in separating most of the New Guinea species. We have not had the opportunity to examine specimens of *C. novae-guineae*.

Cyrtodactylus derongo new species

Holotype. Museum of Comparative Zoology R126205, an adult female, collected by Fred Parker in the Derongo area at an elevation of 1300 feet, Alice River system, tributary to the upper Fly River, Papua, New Guinea, 8 April 1969.

Paratypes. Museum of Comparative Zoology R126203, 126204, and 126206, Papua New Guinea Museum R995, and American Museum of Natural History 103910, same data as the holotype.

Diagnosis. A *Cyrtodactylus* with small scales on postero-ventral surface of thighs meeting the enlarged scales of antero-ventral surface at a sharp boundary; the rows of enlarged femoral scales forming a continuous series with preanal rows; enlarged preanal scales posterior to the pore series absent; dorsal ground color dark brown with very faint darker blotches enclosing irregular rows of large, white tubercles (Fig. 1).

Description. A moderately large *Cyrtodactylus*; four adult females measure 105–112 mm snout–vent length, one specimen 81 mm in snout–vent length is immature; head about one and one-half times its breadth; eye, large, its diameter about one-third of the length of the head and about equal to its distance from the nostril; diameter of ear opening less than half its distance from the eye; head covered with granules, very small posteriorly and somewhat larger anteriorly; scattered, moderate-sized, pointed tubercles as far anterior as the interorbital region; rostral large, rectangular, its breadth about 60 percent of its length, nostril bordered by the rostral, supranasal, first labial and 3 small shields; upper labials 11 or 12; lower labials 11 to 13; supranasals large, separated by 1 or 2 scales; one large pair of postmentals in contact posteriorly for about half their length; distinct lateral fold lacking, but its normal position marked by a row of flattish tubercles separated from one another by several smaller scales; in the mid-body region, 20 irregular lines of dorsal tubercles between the aforementioned rows of flattish scales; 15 to 18 rows in the axillary region; some of the tubercles are white and tend to form widely separated irregular transverse lines, 8 to 10 between the nape and the hind limbs; undersurface of



Figure 1. Dorsal view of *Cyrtodactylus derongo*, MCZ 126205, type specimen.

head with small granules; venter with about 46 to 48 rows of scales at the mid-body between the ventrolateral rows of tubercles, small and granular laterally, but merging gradually with the large cycloid scales of the mid-venter; the large preanal-pore scales in a very shallow “/\” continuous with a row of femoral-pore scales that are gradually reduced in size along the femur; those anterior to the pore row somewhat enlarged, flattish scales on both the thighs and the preanal region, the latter merging with those of the venter; posteriorly the pore series is met abruptly by small granular scales in both the preanal and femoral regions; 24 to 26 rows of lamellae and scales beneath the fourth toe; tail only slightly depressed, with square or rectangular plates toe; tail only slightly depressed, with square or rectangular plates on the ventral surface and with every fourth or fifth scale distinctly enlarged.

Snout-vent length of holotype 105 mm.

Color (in preservative). The dorsum is dark reddish brown with 9 or 10 very faint series of darker blotches each enclosing two to several large white tubercles; the latter tend to form very irregular, widely separated, transverse rows; in the intervening areas the tubercles are dark or have a faint whitish tip; scattered white tubercles also occur on the posterior part of the head, the dorsal surfaces of the limbs and the base of the tail; venter lighter brown, most dilute on the head and throat, each scale marked by a varying number of small brown spots and flecks. In life, the dorsal ground color is dark purplish brown; the venter is paler and more translucent. The iris is deep brown.

Habitat note. The specimens of *Cyrtodactylus derongo* were collected from crannies and hollows in trees in dense rain forest. Natives state the species is completely arboreal. Two other species of *Cyrtodactylus*, *papuensis* and *mimikanus*, are sympatric with *derongo*, and were observed both on the forest floor and on trees a few feet above the ground. A possible fourth species, also arboreal, was observed in the same area but specimens are not available for identification.

Comparisons. Differs from other Indo-Australian species of *Cyrtodactylus* in the rather uniformly dark ground color of dorsum marked by large white tubercles. The color pattern is reminiscent of that of *Underwoodisaurus milli*, but in the latter the white patches involve small surrounding scales, and the patches may be fused into partial or complete transverse bands. Compared to other New Guinean species, *C. derongo* is somewhat

intermediate in size along with *mimikanus*, *marmoratus*, *papuen-sis*, and *pelagicus*, and in contrast to the diminutive *vankampeni* and the larger *loriae*, *lousiadensis* and *novaeguineae*. It also differs from other species, with the possible exception of *novaeguineae* (not examined), in the pattern of enlarged preanal and femoral scales, and in lacking enlarged scales posterior to the pore series in the preanal area. *C. pelagicus* and *vankampeni* exhibit no or only very slightly enlarged scales in the pore series; *loriae*, *lousiadensis*, *mimikanus*, *marmoratus*, and *papuensis* exhibit 3 to 8 or 9 short rows of large scales posterior to the pore series in the preanal area.

KEY TO *Cyrtodactylus* FROM NEW GUINEA

1. a. Preanal region, or both preanal and femoral regions, with one or more rows of distinctly enlarged scales. 3
 - b. Preanal and femoral regions covered by relatively uniform small scales, even the pore series not distinctly enlarged. 2
2. a. Dorsal rows of tubercles at mid-body 22-24, usually 10 at region of fore limbs; 8-12 preanal pores, femoral pores absent. *pelagicus*
 - b. Dorsal rows of tubercles at mid-body 10-12, usually 6 at region of fore limbs; 45-50 preanal and femoral pores in a continuous series. *vankampeni*
3. a. Dorsum usually marked by a pattern of light and dark bands or distinct dark blotches of varying size; or if melanistic, lacking prominent, white tubercles. 4
 - b. Dorsum dark brown with very faint darker blotches enclosing prominent, white tubercles, which tend to form narrow, irregular, partial or complete transverse series; a continuous series of preanal and femoral pore scales (females) preceded anteriorly by several rows of enlarged scales, those in the preanal region merging with those of the venter; no enlarged scales posterior to the pore series in the preanal region *derongo*
4. a. One or more rows of enlarged femoral scales; upper labials usually not greater than 12. 5
 - b. No enlarged femoral scales; 12-14 upper labials; 10-11 broad lamellae under basal portion of fourth toe; dorsum with a double or united series of 5 or 6 rather large dark blotches between ear region and base of tail, separated by light bands variably marked by 3 or 4 smaller dark blotches; males without pores. *sermowaiensis*
5. a. Enlarged preanal pore scales in a shallow “/\” chevron. 7
 - b. Enlarged preanal pore scales compressed into a narrow “/\” sunk in a groove in males with 8-14 pores. 6
6. a. Seven to 9 moderately narrow, dark, irregularly margined bands or series of blotches between the ear region and the groin; 8-10 preanal

pore scales bearing pores in males, preceded anteriorly by 1 or 2 rows of much enlarged scales and followed posteriorly by a narrow cluster of 8-12 enlarged preanal scales; preanal series widely separated from a single row of much enlarged femoral scales; no femoral pores.

..... *papuensis*

- b. Seven to 9 irregularly margined, dark bands or blotches between the ear region and the groin; 12-14 preanal pore scales bearing pores in males, preceded anteriorly by several rows of enlarged scales merging with those of the venter and followed posteriorly by several rows of enlarged scales which diminish gradually; several rows of enlarged femoral scales continuous with the enlarged preanal series; a short series of 4-6 femoral pores separated from the preanal series.

..... *marmoratus*

7. a. Dorsum with five broad, dark, rather even-margined, transverse bands or double series of blotches between the ear region and the groin; 26-28 irregular rows of rather small, unikeeled tubercles between lateral folds at mid-body; a continuous series of enlarged preanal and femoral pore scales bearing 38-80 pores¹ for several males examined but in each instance reaching the distal end of the femur, both preceded anteriorly by several rows of enlarged scales merging with those of the venter in the preanal region, followed posteriorly by several rows of enlarged preanal scales that diminish gradually. *louisianensis*

- b. Dorsum with 5 to 8 broad to narrow dark bands or series of blotches, usually with irregular margins, between the ear region and the groin; 20-22 irregular rows of tubercles between lateral folds at mid-body; a continuous or interrupted series of preanal and femoral pore scales, some bearing pores in males. 8

8. a. Dorsum with 5 dark transverse bands or series of blotches between the ear region and the groin; males with a continuous series of preanal and femoral pores. 9

- b. Dorsum with 7 or 8 dark transverse bands or series of blotches between the ear region and the groin; a series of enlarged preanal scales bearing 12-14 pores in males; often separated by 3 or 4 somewhat smaller scales from the pore-bearing femoral series; in males the latter bearing a median group of 0-5 pores and a distal group about 5-11 pores on either side; both preanal and femoral series preceded anteriorly by several rows of enlarged scales which in the body region merge with those of the venter; and in the preanal region also followed posteriorly by several rows of enlarged scales which gradually diminish in size.

..... *mimikanus*

9. a. A continuous series of preanal and femoral pores extending the length of the femur, bearing in males an uninterrupted series of 60-70 pre-

¹This wide range may reflect population differences, since in our small sample those with the lowest number of pores were from Australia and those with the largest number from the Solomon Islands.

- anal and femoral pores; preanal pore series preceded by several rows of enlarged scales merging with those of the venter, and followed posteriorly by 3 or 4 rows of enlarged scales; femoral scales anterior to the pore series exhibiting a gradual reduction in number of scales and a resultant strongly tapered appearance; 20-24 lamellae and enlarged scales beneath the fourth toe; small, roundish tubercles absent from throat. *loriae*
- b. A series of enlarged preanal and femoral pore scales, bearing a continuous series of 38-42 preanal and femoral pores in males; 28-33 lamellae and enlarged scales under the fourth toe; throat with some scattered small rounded tubercles (from description by Brongersma, 1934). *novaeguineae*

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